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Pacific continues to influence climate

30 December 2008

2009 is expected to be one of the top-five warmest years on record, despite continued cooling of huge areas of the tropical Pacific Ocean, a phenomenon known as La Niña.

According to climate scientists at the Met Office and the University of East Anglia the global temperature is forecast to be more than 0.4 °C above the long-term average. This would make 2009 warmer than the year just gone and the warmest since 2005.

During La Niña, cold waters rise to the surface to cool the ocean and land surface temperatures. The 2009 forecast includes an updated decadal forecast using a Met Office climate model. This indicates a rapid return of global temperature to the long-term warming trend, with an increasing probability of record temperatures after 2009.

Professor Chris Folland from the Met Office Hadley Centre said: "Phenomena such as El Niño and La Niña have a significant influence on global surface temperature. Warmer conditions in 2009 are expected because the strong cooling influence of the recent powerful La Niña has given way to a weaker La Niña. Further warming to record levels is likely once a moderate El Niño develops."

These cyclical influences can mask underlying warming trends as Professor Phil Jones, Director of the Climatic Research Unit, University of East Anglia, explains: "The fact that 2009, like 2008, will not break records does not mean that global warming has gone away. What matters is the underlying rate of warming - the period 2001-2007, with an average of 14.44 °C, was 0.21 °C warmer than corresponding values for the period 1991-2000."

2008 global temperature

Notes

- The Met Office Hadley Centre advises the UK government on climate change research. Its work is, in part, jointly funded by Defra (Department for Environment, Food and Rural Affairs); DECC (Dept for Energy and Climate Change and MoD (Ministry of Defence).
- The Met Office, in collaboration with the University of East Anglia, maintains a global temperature record which is used in the reports of the Intergovernmental Panel on Climate Change.
- Each January the Met Office, in conjunction with the University of East Anglia, issues a forecast of the global surface temperature for the coming year. The forecast takes into account known contributing factors, such as El Niño and La Niña, increasing greenhouse gas concentrations, the cooling influences of industrial aerosol particles, solar effects and natural variations of the oceans.
- The 1961-90 global average mean temperature is 14.0 °C.
- Global temperature for 2009 is expected to be 14.44 °C, the warmest since 2005, when the value was 14.48 °C.
- The warmest year on record is 1998, which was 14.52 °C, a year dominated by an extreme El Niño.
- Over the nine years, 2000-2008, since the Met Office has issued forecasts of annual global temperature the mean value of the forecast error is 0.06 °C.
- The first Met Office decadal forecast to 2014 was issued in 2007.
- Interannual variations of global surface temperature are strongly affected by the warming influences of El Niño and the cooling influences of La Niña in the Pacific Ocean. 2008, with a provisionally observed temperature of 14.31 °C compared with the forecast value of 14.37 °C.